SAUER SUNDSTRAND

SAUER-SUNDSTRAND COMPANY

2800 East 13th Street Ames, Iowa 50010 Phone (515) 239-6000 Telecopy 515-239-6318

November 3, 1995

Ms. Elizabeth Koesterer
U.S. Environmental Protection Agency
726 Minnesota Avenue
Kansas City, Kansas 66101

Re: Sauer-Sundstrand Facility, Ames, Iowa

Dear Beth:

As promised a couple of weeks ago, I am sending you two reports from our consultants concerning recent activities at the Ames facility.

- Report on the Diesel Impacted Soils at the Sauer-Sundstrand Facility, Ames, Iowa, which was sent to the Iowa Department of Natural Resources. This is the notification letter sent to IDNR, describing the background and actions related to the discovery of diesel impacted soils. Please note that in hydropunch activity conducted in August in the vicinity of the discovery, we found no impacts to the groundwater.

- Hydropunch Sampling, August 1995. This report describes hydropunch activity conducted to better understand the groundwater issues at the facility.

We had a consultant from Enviromental Technologies assess the feasibility of the "reactive wall" that we discussed last summer. Although we really like the concept of this innovative technology, we have determined that it is not an effective technology for this site because of the low groundwater flow rates and inconsistent geologic conditions. It is likely that any groundwater remediation would be conducted using more conventional approaches.

If you have any questions regarding these reports, please give me a call.

Sincerely,
Sauer-Sundstrand Company

Gary McConnell
Manager, Administrative Services

cc: Bob Miller, Sundstrand Corporation

Woodward-Clyde
Engineering & sciences applied to the earth & its environment

October 23, 1995

Mr. Gary McConnell
Sauer-Sundstrand Company
2800 East 13th Street
Ames, Iowa 50010

Subject: Hydropunch Sampling, August 1995

Dear Mr. McConnell:

Woodward-Clyde and Innovative Probing Solutions conducted hydropunch sampling at the Sauer-Sundstrand facility in Ames Iowa on August 8 and 9, 1995. The approximate locations of the hydropunch samples are sketched on a copy of Figure 10 from the draft RCRA Facility Investigation Report (Harding Lawson Associates, April 1995).

Sixteen hydropunch samples were collected and analyzed on-site by a field gas chromatograph for 1,1-dichloroethylene (1,1-DCE), acetone, dichloromethane, trans-1,2-dichloroethylene, 1,1-dichloroethane (1,1-DCA), cis-1,2-dichloroethylene (cis-1,2-DCE), 1,1,1-trichloroethane (1,1,1-TCA), trichloroethylene (TCE), 1,1,2-trichloethane, tetrachloroethylene (PCE), total xylenes, and total volatile hydrocarbons (TVH). The samples were designated with a "GP" for Geoprobe™, the sample location number, and the depth of the boring in feet.

The location and rationale for the samples were as follows:

- Five samples (GP-2-27, GP-3-18, GP-9-15, GP-10-18, GP-15-16, and GP-16-16) were collected along the southern boundary of the property to further assess the extent of the volatile organic compounds in groundwater.

- Samples GP-4-12, GP-5-27, and GP-6-27 were located along a line between monitoring well MW-3 in the northeastern portion of the property and monitoring well MW-18 in the southern portion of the property. These samples were collected to assess whether xylenes are present between MW-3 and MW-18. Xylenes had been reported in MW-3 (8.7 µg/L) and MW-18 (7.7 µg/L) well below the Maximum Contaminant Limit for xylenes of 10,000 µg/L. The samples were collected to assess whether these two detections of xylenes were related.

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10975 El Monte, Suite 100 · Overland Park, Kansas 66211
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- Samples GP-12-15, GP-13-15, GP-14-18 were located in the western portion of the property in order to assess the western extent of the cis-1,2-DCE (8.3 µg/L), PCE (36 µg/L), 1,1,1-TCA (25 µg/L), and TCE (19 µg/L) detected in monitoring well MW-31.

- Samples GP-7-24 and GP-8-24 were located near the west side of the building to assess whether residual volatile organic compounds from possible hydraulic oil and diesel releases were present and detectable.

- Samples GP-1-30, GP-17-39, and GP-18-18 were located near the gas station north of the facility in order to assess whether releases from a underground storage tank had migrated onto the Sauer-Sundstrand property.

Two hydropunch attempts, GP-11-33 and GP-15-16, did not yield sufficient water for analysis. Two grab samples were collected from monitoring wells MW-21 and MW-25 without purging.

Compounds were detected at three locations, all of which were along the southern boundary of the property west of MW-18:

- 1,1,1-TCA was detected at 6 µg/L in GP-2-27.

- 1,1,1-TCA also was detected at 6 µg/L in GP-3-18.

- 1,1,1-TCA was detected again in sample GP-10-18 at 174 µg/L, along with 1,1-DCA at 57 µg/L and 1,1-DCE at 13 µg/L.

These results suggest the following:

- The lens of detectable volatile organic compounds extends from approximately 100 feet west of monitoring well MW-19 to approximately 125 east of MW-19 along the southern property boundary. The concentrations in GP-2-27 and GP-3-18, however, are very near the detection limit for 1,1,1-TCA of 5 µg/L.

- The low concentrations of xylenes detected in MW-3 and MW-18 are apparently not related to the same source.

- Volatile organic compounds were not detected west of monitoring well MW-31, suggesting that volatile organic compounds apparently have not migrated off-site.

- Total volatile hydrocarbons were not detected near the west side of the building, suggesting one of the following:
  - hydrocarbons have not reached the locations or the horizons sampled; or
  - hydrocarbons are not present in the groundwater at levels detectable by the procedures used.

- Total volatile hydrocarbons were not detected in the vicinity of the gas station north of the facility, suggesting that releases from the underground storage tank have apparently not yet migrated onto the Sauer-Sundstrand property.

It is important to remember that the underlying geology of the site consists of numerous thin and discontinuous sand lenses within relatively impermeable clay. An attempt was made to collect samples from sand lenses which may present a migration pathway from areas of known releases. It is possible, but unlikely that released substances could exist at depths other than those sampled.

Woodward-Clyde

Attached is the report from Innovative Probing Solutions. Two conductivity profiles were performed for stratigraphic purposes and are included in the report. If you have any questions, please do not hesitate to call.

Sincerely,

Matthew E. Wilson
Assistant Project Geologist

MEW:mew

Enclosure
cc: Jim Andreasen

PROJECT: Sauer-Sundstrand
Ames, IA

CLIENT: Woodward-Clyde Consultants
10975 El Monte
Suite 100
Overland Park, KS 66211

SAMPLE DATE: August 8-9, 1995

REPORT DATE: August 11, 1995

REPORT NUMBER: 9508895

This report summarizes groundwater sampling activities along with on-site headspace analyses at the above-referenced site. Groundwater samples were obtained by utilizing a stainless-steel ball-and-seat sampler attached to the end of polytubing.

The static headspace method was utilized for all on-site groundwater analyses. All vapor samples were directly injected into a Shimadzu GC-14A and specific contaminant concentrations were calculated by a Shimadzu CR-4A computer integrator using a flame ionization detector and an electron capture detector (FID/ECD). A total of eighteen (18) samples were analyzed for 1,1-dichloroethylene, acetone, dichloromethane, trans-1,2-dichloroethylene, 1,1-dichloroethane, cis-1,2-dichloroethylene, 1,1,1-trichloroethane, trichloroethylene, 1,1,2-trichloroethane, tetrachloroethylene, total xylenes, and total volatile hydrocarbons (TVH). Proven laboratory procedures were employed for quality assurance/quality control, including periodic blanks and calibration standards, resulting in a total of thirty-four (34) analyses.

The static headspace method utilized is a proven method for field screening of volatile organic compounds. Although at times results may prove similar to other laboratory methods, they may also prove to differ. The analytical procedure is one which provides a rapid screening for the targeted compounds with reproducible results.

Mr. Matthew E. Wilson of Woodward-Clyde Consultants was present to direct sampling activities.

Upon reviewing the following results, please do not hesitate to call with any questions. Thank you for choosing Innovative Probing Solutions for your project.

WOODWARD-CLYDE CONSULTANTS
OVERLAND PARK, KS

SAUER-SUNDSTRAND
AMES, IA

AUGUST 8-9, 1995

REPORT #9508895

LOCATION	GP1-29.8	GP2-26.7	GP3-17.7	GP4-11.5
TYPE	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER
DEPTH	29.8'	26.7'	17.7'	11.5'
1,1-DICHLOROETHYLENE	BMDL	BMDL	BMDL	BMDL
ACETONE	BMDL	BMDL	BMDL	BMDL
DICHLOROMETHANE	BMDL	BMDL	BMDL	BMDL
TRANS-1,2-DICHLOROETHYLENE	BMDL	BMDL	BMDL	BMDL
1,1-DICHLOROETHANE	BMDL	BMDL	BMDL	BMDL
CIS-1,2-DICHLOROETHYLENE	BMDL	BMDL	BMDL	BMDL
1,1,1-TRICHLOROETHANE	BMDL	BMDL	0.006	BMDL
TRICHLOROETHYLENE	BMDL	BMDL	BMDL	BMDL
1,1,2-TRICHLOROETHANE	BMDL	BMDL	BMDL	BMDL
TETRACHLOROETHYLENE	BMDL	BMDL	BMDL	BMDL
TOTAL XYLENES	BMDL	BMDL	BMDL	BMDL
TVH	<0.005	<0.005	<0.005	<0.005

LOCATION	GP5-26.6	GP6-17	GP7-23.9	GP8-23.7
TYPE	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER
DEPTH	26.6'	17'	23.9'	23.7'
1,1-DICHLOROETHYLENE	BMDL	BMDL	BMDL	BMDL
ACETONE	BMDL	BMDL	BMDL	BMDL
DICHLOROMETHANE	BMDL	BMDL	BMDL	BMDL
TRANS-1,2-DICHLOROETHYLENE	BMDL	BMDL	BMDL	BMDL
1,1-DICHLOROETHANE	BMDL	BMDL	BMDL	BMDL
CIS-1,2-DICHLOROETHYLENE	BMDL	BMDL	BMDL	BMDL
1,1,1-TRICHLOROETHANE	BMDL	BMDL	BMDL	BMDL
TRICHLOROETHYLENE	BMDL	BMDL	BMDL	BMDL
1,1,2-TRICHLOROETHANE	BMDL	BMDL	BMDL	BMDL
TETRACHLOROETHYLENE	BMDL	BMDL	BMDL	BMDL
TOTAL XYLENES	BMDL	BMDL	BMDL	BMDL
TVH	<0.005	<0.005	<0.005	<0.005

LOCATION	GP9-14.8	GP10-17.7	GP12-14.8	GP13-14.6
TYPE	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER
DEPTH	14.8'	17.7'	14.8'	14.6'
1,1-DICHLOROETHYLENE	BMDL	0.013	BMDL	BMDL
ACETONE	BMDL	BMDL	BMDL	BMDL
DICHLOROMETHANE	BMDL	BMDL	BMDL	BMDL
TRANS-1,2-DICHLOROETHYLENE	BMDL	BMDL	BMDL	BMDL
1,1-DICHLOROETHANE	BMDL	0.057	BMDL	BMDL
CIS-1,2-DICHLOROETHYLENE	BMDL	BMDL	BMDL	BMDL
1,1,1-TRICHLOROETHANE	BMDL	0.174	BMDL	BMDL
TRICHLOROETHYLENE	BMDL	BMDL	BMDL	BMDL
1,1,2-TRICHLOROETHANE	BMDL	BMDL	BMDL	BMDL
TETRACHLOROETHYLENE	BMDL	BMDL	BMDL	BMDL
TOTAL XYLENES	BMDL	BMDL	BMDL	BMDL
TVH	<0.005	<0.005	<0.005	<0.005

LOCATION	GP14-17.6	GP16-16	GP17-38.6	GP18-20.6
TYPE	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER
DEPTH	17.6'	16.0'	38.6'	20.6'
1,1-DICHLOROETHYLENE	BMDL	BMDL	BMDL	BMDL
ACETONE	BMDL	BMDL	BMDL	BMDL
DICHLOROMETHANE	BMDL	BMDL	BMDL	BMDL
TRANS-1,2-DICHLOROETHYLENE	BMDL	BMDL	BMDL	BMDL
1,1-DICHLOROETHANE	BMDL	BMDL	BMDL	BMDL
CIS-1,2-DICHLOROETHYLENE	BMDL	BMDL	BMDL	BMDL
1,1,1-TRICHLOROETHANE	BMDL	BMDL	BMDL	BMDL
TRICHLOROETHYLENE	BMDL	BMDL	BMDL	BMDL
1,1,2-TRICHLOROETHANE	BMDL	BMDL	BMDL	BMDL
TETRACHLOROETHYLENE	BMDL	BMDL	BMDL	BMDL
TOTAL XYLENES	BMDL	BMDL	BMDL	BMDL
TVH	<0.005	<0.005	<0.005	<0.015

LOCATION	MW21	MW25		
TYPE	GROUNDWATER	GROUNDWATER		
DEPTH	–	–		
1,1-DICHLOROETHYLENE	BMDL	BMDL		
ACETONE	BMDL	BMDL		
DICHLOROMETHANE	BMDL	BMDL		
TRANS-1,2-DICHLOROETHYLENE	BMDL	BMDL		
1,1-DICHLOROETHANE	BMDL	BMDL		
CIS-1,2-DICHLOROETHYLENE	BMDL	BMDL		
1,1,1-TRICHLOROETHANE	BMDL	BMDL		
TRICHLOROETHYLENE	BMDL	BMDL		
1,1,2-TRICHLOROETHANE	BMDL	BMDL		
TETRACHLOROETHYLENE	BMDL	BMDL		
TOTAL XYLENES	BMDL	BMDL		
TVH	<0.005	<0.005		

BMDL=BELOW METHOD DETECTION LIMIT
ALL RESULTS REPORTED IN PARTS PER MILLION
DETECTION LIMITS:

1,1-DICHLOROETHYLENE	0.010
ACETONE	0.025
DICHLOROMETHANE	0.050
TRANS-1,2-DICHLOROETHYLENE	0.015
1,1-DICHLOROETHANE	0.015
CIS-1,2-DICHLOROETHYLENE	0.015
1,1,1-TRICHLOROETHANE	0.005
TRICHLOROETHYLENE	0.005
1,1,2-TRICHLOROETHANE	0.010
TETRACHLOROETHYLENE	0.005
TOTAL XYLENES	0.005
TOTAL VOLATILE HYDROCARBONS	0.005

GP-1-30 ND 120'
30'
AMOCO (not to scale)
31'
19'
13'
74'
GP-17-39 ND
GP-18-18 ND

PARKING LOT

HYDRO-TRANSMISSION PLANT

BACK 101
MW-1
BACK 102
BQL

225'
150'
75'
0'
50'
100'
150'
N

21MW
19MW
18H
24MW
20MW
2BH
22MW
BQL
MW-4
2JBH
POLE BLDG
MW-3
XYL 8.7

SWMU4A-101
SWMU4A-102
SWMU4A-104
SWMU4A-103
MW-R2S
MW-R2D
BQL
ACE 25

SWMU15-101
GP-7-24 ND
SWMU15-102
GP-8-24 ND

1,1-DCA	38
1,1-DCE	33
c-1,2-DCE	700
PCE	730
1,1,1-TCA	65
TCE	31

1,1-DCA	9.6 (13*)
1,1-DCE	54 (84)
c-1,2-DCE	110 (120)
PCE	1,800 (1,900)
1,1,1-TCA	410 (530)
TCE	28 (31)

SWMU3-102
SWMU3-101
6BH
14BH
12BH
13BH
15BH
4BH
3BH
5BH
8BH
26BH
25BH
11BH
9BH
7BH
10BH
17MW
FORMER DDSA
16MW
MW-R6S
MW-R6D
MW-5
SWMU6-101
SWMU6-102
GP-6-27 ND

1,1-DCA	37
1,1-DCE	34
c-1,2-DCE	27
PCE	50
1,1,1-TCA	64
TCE	26

1,1-DCA	560
1,2-DCA	5.8
1,1-DCE	250
c-1,2-DCE	200
MC	9.1*
PCE	1,100
1,1,1-TCA	970
1,1,2-TCA	30
TCE	72

30,000 GAL. PROPANE STORAGE TANKS

PCE 6.2
MW-28

c-1,2-DCE	8.3 (7.7)
PCE	36 (34)
1,1,1-TCA	25 (23)
TCE	19 (17)

GP-12-15 MW-31 ND
GP-13-15 MW-32 ND
MW-29
MW-30
MW-R30
BQL
GP-14-18 ND
PCE 25

1,1-DCA	17
1,1-DCE	33
c-1,2-DCE	40
PCE	810
1,1,1-TCA	180
TCE	64

MW-10

BQL
MW-R17
MW-R13
GP-5-27 ND

1,1-DCA	13*
1,1-DCE	24*
PCE	34
1,1,1-TCA	270

MW-R14

1,1-DCA	44
1,1-DCE	130
c-1,2-DCE	730
t-1,2-DCE	7.1*
PCE	2,500
1,1,1-TCA	810
1,1,2-TCA	8
TCE	91

MW-11
BQL
MW-12

1,1-DCA	70
1,1-DCE	110
c-1,2-DCE	90
PCE	1,800
1,1,1-TCA	760
1,1,2-TCA	20
TCE	26

MW-16
GP-11-33 (no sample)
GP-4-12 ND
MW-15
BQL

SOUTH 101
SOUTH 102
SOUTH 103
SOUTH 104
SOUTH 105
SOUTH 106
SOUTH 107
SOUTH 108
SOUTH 109
SOUTH 110
SOUTH 111
SOUTH 112
SOUTH 113
SOUTH 114

1,1-DCA	130
1,1-DCE	140
c-1,2-DCE	150
PCE	1,600*
1,1,1-TCA	900
1,1,2-TCA	18
TCE	170

MW-20
1,1,1-TCA=174
1,1-DCA=57
1,1-DCE=13
GP-10-18
GP-16-16 ND
MW-18
XYL 7.7
GP-3-18 1,1,1-TCA=6
MW-19
GP-9-15 ND
GP-2-27 1,1,1-TCA=5
GP-15-16 (no sample)

APPROXIMATE PROPERTY BOUNDARY

CHICAGO & NORTHWESTERN RAILROAD

INTERSTATE ROUTE 35

GEOPROBE LOCATIONS (AUG 8 & 9, 1995)
KEY: RESULTS IN ppb

ABBR.	COMPOUND
ACE	ACETONE
1,1-DCA	1,1-DICHLOROETHANE
1,1-DCE	1,1-DICHLOROETHENE
1,2-DCE	1,2-DICHLOROETHENE
c-1,2-DCE	CIS-1,2-DICHLOROETHENE
t-1,2-DCE	TRANS-1,2-DICHLOROETHENE
MC	METHYLENE CHLORIDE
PCE	TETRACHLOROETHENE
1,1,1-TCA	1,1,1-TRICHLOROETHANE
1,1,2-TCA	1,1,2-TRICHLOROETHANE
TCE	TRICHLOROETHENE
XYL	XYLENES

PCE 20 = VOLATILE ORGANIC COMPOUND CONCENTRATION DETECTED IN GROUNDWATER, SHOWN IN ppb

BQL = BELOW QUANTITATION LIMIT

(20) = INDICATES RESULTS FROM DUPLICATE SAMPLE

* = INDICATES ESTIMATED RESULTS

⊗ = SOIL BORING LOCATION (HLA)

⊕ = MONITORING WELL LOCATION (HLA)

● = SOIL BORING LOCATION (OTHERS)

⊙ = MONITORING WELL LOCATION (OTHERS)

DRAFT

Harding Lawson Associates
Engineering and Environmental Services

Groundwater Analytical Results
Data Collected In Sept.-Oct., 1994
Hydro-Transmission Plant
Ames, Iowa 50010

FIGURE 10

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
FWS	23088.19		03/31/95	

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Engineering & sciences applied to the earth & its environment

October 27, 1995
WCC Project 5E11629

Iowa Department of Natural Resources
Lavoy Haage
Supervisor Solid Waste Section
900 E. Grand
Des Moines, Iowa 50319

Re: Report on the Diesel Fuel Impacted Soil
at the Sauer-Sundstrand Facility, Ames, Iowa

Dear Mr. Haage:

We are writing to notify the Iowa Department of Natural Resources (IDNR) about the response to detection of two areas of diesel fuel impacted soil at the Sauer-Sundstrand facility, 2800 East 13th Street, Ames, Iowa. Woodward-Clyde is submitting this letter on behalf of Sauer-Sundstrand.

Background

The diesel was discovered during construction at the site. A trench was excavated from west to east (Drawing 1) for the installation of cables from the outside to the inside of a building at the Sauer-Sundstrand facility. Odors thought to be from TPH impacted soil were detected by the contractor's personnel excavating the trench as it neared the building. At about the same time, a small hole was cut through the concrete floor inside the building and excavated to the dimensions of 4 feet by 6 feet by 5 feet, to install a foundation to support machinery. When the hole inside the building was excavated, odors were detected which were believed to be from TPH in the soil. At each location, work was immediately stopped to determine how to address the potentially impacted soil.

Sauer-Sundstrand retained Woodward-Clyde to evaluate the situation. Based on discussions with Mr. Ron Kozell of the IDNR Emergency Response Branch on September 14, 1995, Woodward-Clyde understands that while no official report is required, the IDNR Solid Waste Section requested this report describing sampling results and actions taken.

Sampling

GSS, Inc. (Ankeny, Iowa), mobilized to the site on September 13, 1995 and collected soil samples from the two locations where the odors were detected. Two samples were collected

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from soils inside the building and two samples were collected from the widest part of the trench outside the building. The sample locations are shown in Drawing 1.

Sample PF-1 was collected at a depth of 4 feet from the trench next to the foundation. Sample PW-1 was collected along the south edge of the trench outside the building at a depth of 2 feet. Sample PF-2 was collected from soil inside the building. Sample PW-2 was collected approximately 4 feet west of sample PF-2 at a depth of 4 feet.

Each of the four samples were analyzed by National Environmental Testing, Inc. of Cedar Falls, Iowa. The laboratory analytical reports are presented in Attachment 1. The results for total hydrocarbons and BTEX utilizing method S-8015/IA-0A1 are summarized below:

Sample Number	Total Hydrocarbons	Total BTEX
PW-1	740 mg/kg	9.7 mg/kg
PW-2	510 mg/kg	7.1 mg/kg
PF-1	940 mg/kg	12.3 mg/kg
PF-2	120 mg/kg	2.3 mg/kg

The diesel impacted soil encountered during this project was likely from two different sources. A small sump was located inside the building in the area where a diesel engine once operated. The sump may have collected diesel fuel that had leaked from the engine or fuel lines during operation of the engine. The engine was fueled by diesel fuel stored in a 300-gallon above-ground tank just outside the building. Diesel fuel impacted soil found in the trench outside the building was likely from small leaks and/or spills during filling of the tank.

Closure

Woodward-Clyde contracted Ron Kozell of the IDNR on September 19, 1995, on behalf of Sauer-Sundstrand. During this call the results of the samples taken at the site and the serious soil remediation difficulties posed by the presence of the building were discussed. Mr. Kozell requested that a letter describing the entire situation be sent to IDNR.

Impacted soil was removed to the maximum extent practical, and stockpiled for remediation. Complete removal of impacted soil was not feasible because the trench (see Drawing 1) could not be excavated deeper than the top of the footings of the outside wall of the building. Any attempt to excavate deeper in that area could jeopardize the structural integrity of the

wall by undermining the footing. Further excavation from inside the building was not feasible because it would require extensive concrete removal and disrupt operations within the building. Moreover, the building functions as a cap over any remaining hydrocarbons beneath the floor.

Therefore, Sauer-Sundstrand completed the installation of the cables and machinery foundation and the excavated areas were backfilled with concrete and covered with clean fill. The wide portion of the trench was filled primarily with concrete to encase the cables and then covered with soil. The hole inside the building will be completed as a foundation to allow equipment installation.

From information that is currently available, the diesel impacted soil encountered during this project does not appear to have come from a large release. No other known reports of diesel odors in the area have been identified. The likely sources of diesel were occasional overfills and spills at an above-ground fuel tank which was taken out of service some time ago and a sump below a diesel engine which was also removed from the building several years ago.

The Sauer-Sundstrand facility is undergoing a RCRA Facility Investigation (RFI). The area inside the building is within an area designated as a solid waste management unit (SWMU) and was studied in the RFI report. The site is undergoing soil and groundwater investigations related to the SWMUs identified in the RFI and the data were presented to the USEPA in the Draft RCRA Facility Investigation Report Sauer-Sundstrand Facility, 2800 East 13th Street, Ames, Iowa, April 1995.

If you have any questions or comments, please feel free to contact us.

Sincerely yours,

Michael D. Franano
Assistant Project Scientist

Dennis Y. Takade, Ph.D.
Vice President and Principal

cc: Gary McConnell, Sauer-Sundstrand
George Charbonneau, Sauer-Sundstrand
Jim Andreasen, Spencer Fane Britt & Browne

ATTACHMENT 1
SOIL SAMPLE ANALYTICAL REPORTS

NATIONAL ENVIRONMENTAL TESTING, INC.

Cedar Falls Division
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319) 277-2401
Fax: (319) 277-2425

ANALYTICAL REPORT

09/18/1995

GROUNDWATER SERVICE SUPPLY
2701 S.E. Convenience Blvd
Suite 6
Ankeny, IA 50021
(515)964-0304

NET Job Number: 95.09317

NET Sample Number: 313811

Collected by: GSS

Collectors Phone No.: 515/964-0304

Job Description: PROJECT #N95163 - AMES, IOWA

Date Taken: 09/13/1995

Date Received: 09/14/1995

Sample ID: PF-1 4' Sauer Sundstrand Co.

Analyte	Result	Units	Result Flag	Analyst	Date Analyzed	Method	Reporting Limit		Matrix
Extraction Prep, soil	complete			kak	09/14/1995	IOWA-OA2			Soil
EXTRACTABLE HYDROCARBONS-SOIL									
Total Extractable Hydrocarbons	4,500	ug/g		smh	09/15/1995	IA-OA2	10	ug/g	Soil
Diesel	1,200	ug/g		smh	09/15/1995	IA-OA2	10	ug/g	Soil
Motor Oil	3,300	ug/g		smh	09/15/1995	IA-OA2	10	ug/g	Soil
VOLATILES - BTEX (NONAQUEOUS)									
Benzene	<2.5	ug/g		djl	09/14/1995	S-8015/IA-OA1	0.5	ug/g	Soil
Ethylbenzene	7.4	ug/g		djl	09/14/1995	S-8015/IA-OA1	0.5	ug/g	Soil
Toluene	<2.5	ug/g		djl	09/14/1995	S-8015/IA-OA1	0.5	ug/g	Soil
Xylenes, Total	4.9	ug/g		djl	09/14/1995	S-8015/IA-OA1	0.5	ug/g	Soil
Total Hydrocarbons	940	ug/g	D	djl	09/14/1995	S-8015/IA-OA1	10	ug/g	Soil

All results are calculated on a wet weight basis.
Reporting Limits are extremely matrix dependent and may not always be achievable.
Key to Flags: D = Chromatogram does not match gasoline (OA-1 only) B = Blank hit for this compound
Units: mg/L = ppm ug/g = mg/kg = ppm ug/L = ppb

R. L. Bindert
Operations Manager

NATIONAL ENVIRONMENTAL TESTING, INC.

Cedar Falls Division
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319) 277-2401
Fax: (319) 277-2425

ANALYTICAL REPORT

09/18/1995

GROUNDWATER SERVICE SUPPLY
2701 S.E. Convenience Blvd
Suite 6
Ankeny, IA 50021
(515)964-0304

NET Job Number: 95.09317

NET Sample Number: 313813

Collected by: GSS

Collectors Phone No.: 515/964-0304

Job Description: PROJECT #N95163 - AMES, IOWA

Date Taken: 09/13/1995

Date Received: 09/14/1995

Sample ID: PF-2 5' Sauer Sundstrand Co.

Analyte	Result	Units	Result Flag	Analyst	Date Analyzed	Method	Reporting Limit		Matrix
Extraction Prep, soil	complete			kak	09/14/1995	IOWA-OA2			Soil
EXTRACTABLE HYDROCARBONS-SOIL									
Total Extractable Hydrocarbons	2,600	ug/g		smh	09/15/1995	IA-OA2	10	ug/g	Soil
Diesel	<200	ug/g		smh	09/15/1995	IA-OA2	10	ug/g	Soil
Motor Oil	2,600	ug/g		smh	09/15/1995	IA-OA2	10	ug/g	Soil
VOLATILES - BTEX (NONAQUEOUS)									
Benzene	<0.5	ug/g		djl	09/14/1995	S-8015/IA-OA1	0.5	ug/g	Soil
Ethylbenzene	<0.5	ug/g		djl	09/14/1995	S-8015/IA-OA1	0.5	ug/g	Soil
Toluene	<0.5	ug/g		djl	09/14/1995	S-8015/IA-OA1	0.5	ug/g	Soil
Xylenes, Total	2.3	ug/g		djl	09/14/1995	S-8015/IA-OA1	0.5	ug/g	Soil
Total Hydrocarbons	120	ug/g	D	djl	09/14/1995	S-8015/IA-OA1	10	ug/g	Soil

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Key to Flags: D = Chromatogram does not match gasoline (OA-1 only) B = Blank hit for this compound
Units: mg/L = ppm ug/g = mg/kg = ppm ug/L = ppb

R. L. Bindert
Operations Manager

NATIONAL ENVIRONMENTAL TESTING, INC.

Cedar Falls Division
704 Enterprise Drive
Cedar Falls, IA 50613
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ANALYTICAL REPORT

GROUNDWATER SERVICE SUPPLY
2701 S.E. Convenience Blvd
Suite 6
Ankeny, IA 50021
(515)964-0304

09/18/1995

NET Job Number: 95.09317

NET Sample Number: 313810

Collected by: GSS

Collectors Phone No.: 515/964-0304

Job Description: PROJECT #W95163 - AMES, IOWA

Date Taken: 09/13/1995

Date Received: 09/14/1995

Sample ID: PW-1 2' Sauer Sundstrand Co.

Analyte	Result	Units	Result Flag	Analyst	Date Analyzed	Method	Reporting Limit		Matrix
Extraction Prep, soil	complete			kak	09/14/1995	IOWA-OA2			Soil
EXTRACTABLE HYDROCARBONS-SOIL									
Total Extractable Hydrocarbons	2,400	ug/g		smh	09/15/1995	IA-OA2	10	ug/g	Soil
Diesel	1,800	ug/g		smh	09/15/1995	IA-OA2	10	ug/g	Soil
Motor Oil	560	ug/g		smh	09/15/1995	IA-OA2	10	ug/g	Soil
VOLATILES - BTEX (NONAQUEOUS)									
Benzene	<0.5	ug/g		djl	09/14/1995	S-8015/IA-OA1	0.5	ug/g	Soil
Ethylbenzene	5.8	ug/g		djl	09/14/1995	S-8015/IA-OA1	0.5	ug/g	Soil
Toluene	1.6	ug/g		djl	09/14/1995	S-8015/IA-OA1	0.5	ug/g	Soil
Xylenes, Total	4.3	ug/g		djl	09/14/1995	S-8015/IA-OA1	0.5	ug/g	Soil
Total Hydrocarbons	740	ug/g	D	djl	09/14/1995	S-8015/IA-OA1	10	ug/g	Soil

All results are calculated on a wet weight basis.
Reporting Limits are extremely matrix dependent and may not always be achievable.
Key to Flags: D = Chromatogram does not match gasoline (OA-1 only) B = Blank hit for this compound
Units: mg/L = ppm ug/g = mg/kg = ppm ug/L = ppb

R. L. Bindert
Operations Manager

NATIONAL ENVIRONMENTAL TESTING, INC.

Cedar Falls Division
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Cedar Falls, IA 50613
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ANALYTICAL REPORT

09/18/1995

GROUNDWATER SERVICE SUPPLY
2701 S.E. Convenience Blvd
Suite 6
Ankeny, IA 50021
(515)964-0304

NET Job Number: 95.09317

NET Sample Number: 313812

Collected by: GSS

Collectors Phone No.: 515/964-0304

Job Description: PROJECT #N95163 - AMES, IOWA

Date Taken: 09/13/1995

Date Received: 09/14/1995

Sample ID: PW-2 4' Sauer Sundstrand Co.

Analyte	Result	Units	Result Flag	Analyst	Date Analyzed	Method	Reporting Limit		Matrix
Extraction Prep, soil	complete			kak	09/14/1995	IOWA-OA2			Soil
EXTRACTABLE HYDROCARBONS-SOIL									
Total Extractable Hydrocarbons	6,600	ug/g		smh	09/15/1995	IA-OA2	10	ug/g	Soil
Diesel	1,300	ug/g		smh	09/15/1995	IA-OA2	10	ug/g	Soil
Motor Oil	5,300	ug/g		smh	09/15/1995	IA-OA2	10	ug/g	Soil
VOLATILES - BTEX (NONAQUEOUS)									
Benzene	<0.5	ug/g		djl	09/14/1995	S-8015/IA-OA1	0.5	ug/g	Soil
Ethylbenzene	4.0	ug/g		djl	09/14/1995	S-8015/IA-OA1	0.5	ug/g	Soil
Toluene	0.6	ug/g		djl	09/14/1995	S-8015/IA-OA1	0.5	ug/g	Soil
Xylenes, Total	2.5	ug/g		djl	09/14/1995	S-8015/IA-OA1	0.5	ug/g	Soil
Total Hydrocarbons	510	ug/g	D	djl	09/14/1995	S-8015/IA-OA1	10	ug/g	Soil

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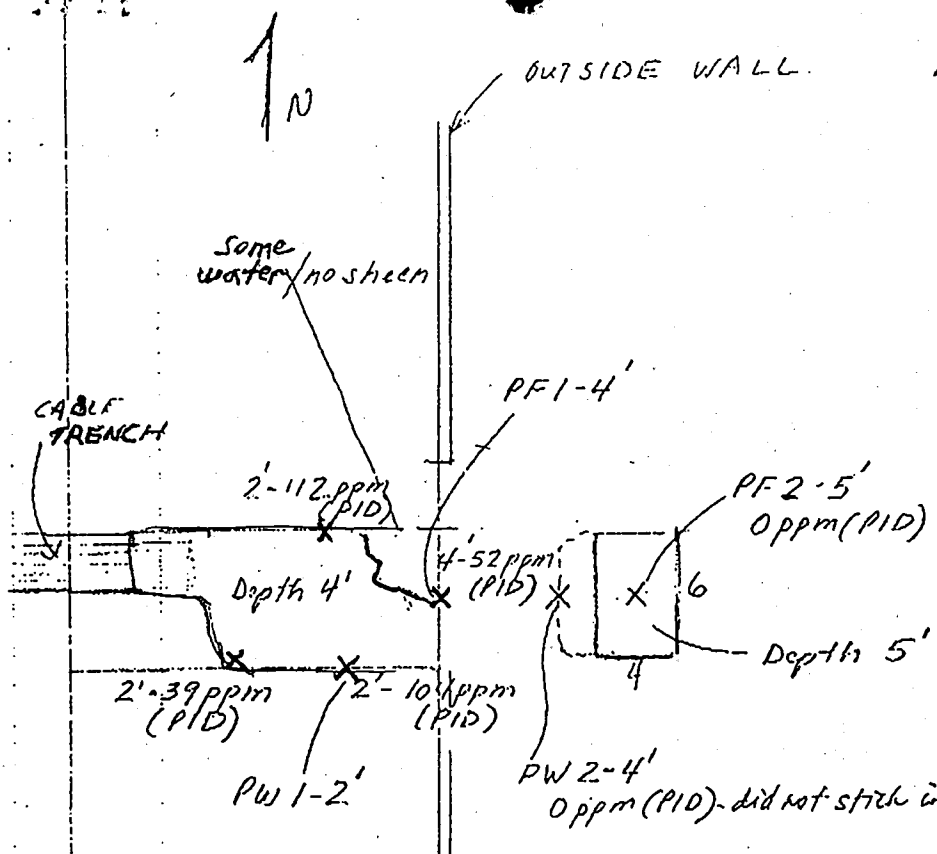
Key to Flags: D = Chromatogram does not match gasoline (OA-1 only) B = Blank hit for this compound
Units: mg/L = ppm ug/g = mg/kg = ppm ug/L = ppb

R. L. Bindert
Operations Manager

A195163



SCALE 1" = 10'

OUTSIDE EXCAVATION IS 200' FROM NW CORNER OF BLDG.

Drawing 1